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The Global System for Mobile Communications (GSM) is widely recognized as the modern digital mobile network architecture. Increasing market demands point toward the relevancy of security-related issues in communications. The security requirements of mobile communications for the mobile users include: (1) the authentication of the mobile user and Visitor Location Register/Home Location Register; (2) the data confidentiality between mobile station and Visitor Location Register, and the data c ...

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Danai Patiyoot, S. J. Shepherd

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This paper deals with security techniques for wireless Networks. The work presented is based on a review of literature regarding current and future wireless security networks systems. The aspects discussed in this paper included the choices of cryptographic algorithms such as protocols for key management and authentication. Various conclusions are drawn from existing security networks and proposed in new wireless ATM network security. Also a proposal for future research into security techniques ...

Keywords: cryptographic, security, wireless

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Untraceability in mobile networks



Didier Samfat, Refik Molva, N. Asokan December 1995 Proceedings of the 1st annual international conference on Mobile computing and networking Full text available: pdf(1.20 MB) Additional Information: full citation, references, citings, index terms **Keywords:** CDPD, GSM, alias, anonymity, authentication, location privacy, mobility, security Ticket based service access for the mobile user Bhrat Patel, Jon Crowcroft September 1997 Proceedings of the 3rd annual ACM/IEEE international conference on Mobile computing and networking Full text available: pdf(1.52 MB) Additional Information: full citation, references, citings, index terms Pen computing: a technology overview and a vision André Meyer July 1995 ACM SIGCHI Bulletin, Volume 27 Issue 3 Full text available: pdf(5.14 MB) Additional Information: full citation, abstract, citings, index terms This work gives an overview of a new technology that is attracting growing interest in public as well as in the computer industry itself. The visible difference from other technologies is in the use of a pen or pencil as the primary means of interaction between a user and a machine, picking up the familiar pen and paper interface metaphor. From this follows a set of consequences that will be analyzed and put into context with other emerging technologies and visions. Starting with a short historic ... Efficient and flexible location management techniques for wireless communication systems Jan Jannink, Derek Lam, Jennifer Widom, Donald C. Cox, Narayanan Shnivakumar November 1996 Proceedings of the 2nd annual international conference on Mobile computing and networking Additional Information: full citation, references, citings, index terms Full text available: pdf(1.27 MB) A rate-based overload control method for the radio channel in PCN Nikos I. Passas, Lazaros F. Merakos September 1997 Wireless Networks, Volume 3 Issue 4 Full text available: pdf(340.69 KB) Additional Information: full citation, abstract, references, index terms Third-generation wireless digital communication systems, currently being developed, are intended to integrate all the existing wireless systems and cover a wide range of services, including voice, video and multimedia. A difficult problem towards this direction is the efficient use of the limited available bandwidth. Although considerable improvements have been made recently in transmitter and receiver technology, the capacity of the air interface is still considerably smaller compared to o ... Authentication protocols for personal communication systems Hung-Yu Lin, Lein Harn October 1995 ACM SIGCOMM Computer Communication Review, Proceedings of the conference on Applications, technologies, architectures, and protocols

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interface. DECT requires an external infrastructure to transfer information between wireless terminals, and to transfer information between a wireless terminal and a fixed network. The Public Switched Telephone Network, the GSM Cellular Network, Private Branch Exchanges and mobile data networks are all under investigation as DECT backbone networks. In this paper we look to the future and describe interworking ...

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	The integrity verification of a device's controlling software is an important aspect of many emerging information appliances. We propose the use of reflection, whereby the software is able to examine its own operation, in conjunction with cryptographic hashes as a basis for developing a suitable software verification protocol. For more demanding applications meta-reflective techniques can be used to thwart attacks based on device emulation strategies. We demonstrate how our approach can be	
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-	205	"mobile node" same authenticat\$3	USPAT; US-PGPUB;	2004/08/02 07:32
			EPO; JPO;	01.32
	1		IBM TDB	
_	C.11/4	("mobile node" same authenticat\$3) and	USPAT;	2004/08/02
	full 4	"protection code"	US-PGPUB;	07:28
		_	EPO; JPO;	
			IBM_TDB	
-	11.NC \( \frac{32}{32}	("mobile node" same authenticat\$3) and	USPAT;	2004/08/02
	H2 /	(mobile near identity)	US-PGPUB;	07:27
	<b>6</b> 65 )		EPO; JPO;	
_	18	(("mobile node" same authenticat\$3) and	IBM_TDB USPAT;	2004/08/02
-	1 6 18	(("mobile node" same authenticates) and (mobile near identity)) and session	US-PGPUB;	07:29
		(modific field identify) and session	EPO; JPO;	", ", ", "
			IBM TDB	
-	4 11/5	((("mobile node" same authenticat\$3) and	USPAT;	2004/08/02
	full (	(mobile near identity)) and session) and	US-PGPUB;	07:29
1		(secret key)	EPO; JPO;	
1		1	IBM TDB	1

,	<del>_</del>					
-		7	9	(((("mobile node" same authenticat\$3) and	USPAT;	2004/08/02
		_	`	(mobile near identity)) and session) and	US-PGPUB;	07:30
1		١.,	/	(secret key)) and respon\$5	EPO; JPO;	
		tull <			IBM_TDB	
-	,	1 m	2	((((("mobile node" same authenticat\$3)	USPAT;	2004/08/02
İ		/		and (mobile near identity)) and session)	US-PGPUB;	07:30
1		'	´	and (secret key)) and respon\$5) and	EPO; JPO;	
				@ad<20000331	IBM_TDB	
-		4	726	mobile same authenticat\$3	USPAT;	2004/08/02
1					US-PGPUB;	07:32
ł					EPO; JPO;	
1					IBM_TDB	
-		1	582	(mobile same authenticat\$3) and	USPAT;	2004/08/02
				@ad<20000331	US-PGPUB;	07:32
			_		EPO; JPO;	
		1 1/	/ ]		IBM TDB	
-		wil/	46	V((mobile same authenticat\$3) and	USPAT;	2004/08/02
}		F 3- 1		@ad<20000331) and (mobile adj identity)	US-PGPUB;	07:32
		ATOS			EPO; JPO;	
		12100			IBM TDB	
_			_ 6	(((mobile same authenticat\$3) and	USPAT;	2004/08/02
		/		@ad<20000331) and (mobile adj identity))	US-PGPUB;	07:33
		[		and (session) and (secret key)	EPO; JPO;	
1		\	<b>,</b>	(	IBM TDB	
1_		1	<b>\</b> 6	((((mobile same authenticat\$3) and	USPAT;	2004/08/02
1			<b>/</b> "	[@ad<20000331] and (mobile adj identity))	US-PGPUB;	07:34
			/	and (session) and (secret key)) and	EPO; JPO;	" . "
1		/	'	respon\$3	IBM TDB	
1_		/	6	(((((mobile same authenticat\$3) and	USPAT;	2004/08/02
	_		Ü	((((mobile same authenticatys) and	US-PGPUB;	08:15
	$\mathcal{L}$	MZ		and (session) and (secret key)) and	EPO; JPO;	00.13
	1	with the			IBM TDB	
		1	24	respon\$3) and (rand\$2 nonce replay)	USPAT;	2004/08/02
-		{	24	gsm same a3 same a8 same rand	· ·	1
					US-PGPUB;	08:16
1		1 1			EPO; JPO;	
		1 (	0.1		IBM_TDB	2004/02/02
-			21	gsm same a3 same a8 same rand same sres	USPAT;	2004/08/02
		\			US-PGPUB;	08:16
			`		EPO; JPO;	
ì			_		IBM_TDB	2224/22/22
		ļ	1	("20020012433").PN.	USPAT;	2004/08/02
		ŀ			US-PGPUB;	11:06
					EPO; JPO;	
					IBM_TDB	
-			1	(("20020012433").PN.) and "protection	USPAT;	2004/08/02
				code"	US-PGPUB;	14:48
					EPO; JPO;	
1					IBM_TDB	
-			777	((network adj access adj identifier) NAI)	USPAT;	2004/08/02
1				and (mobile gsm)	US-PGPUB;	13:05
					EPO; JPO;	
					IBM_TDB	
-			40	(((network adj access adj identifier)	USPAT;	2004/08/02
1				NAI) same identity) and (mobile gsm)	US-PGPUB;	13:06
1					EPO; JPO;	
1			1	,	IBM_TDB	
~		J II	/ 8	$\chi$ ((network adj access adj identifier)	USPAT;	2004/08/02
1		pu"		NAI) same (subscriber adj identity)) and	US-PGPUB;	13:16
1				(mobile gsm)	EPO; JPO;	
1					IBM_TDB	
-			0	((((network adj access adj identifier)	USPĀT;	2004/08/02
1				NAI) same (subscriber adj identity)) and	US-PGPUB;	13:13
1		1		(mobile gsm)) and @ad<20000331	EPO; JPO;	]
					IBM TDB	ļ
-		1/	3	((((network adj access adj identifier)	USPAT;	2004/08/02
	W	pr S	•	NAI) same identity) and (mobile gsm)) and	US-PGPUB;	13:13
		と、く	,	@ad<20000331	EPO; JPO;	
	A	BS /	•		IBM TDB	
_	•	(	7	((((network adj access adj identifier)	USPAT;	2004/08/02
			,	NAI) same (subscriber adj identity)) and	US-PGPUB;	13:16
				(mobile gsm)) and (network adj access adj	EPO; JPO;	
1				identifier)	IBM TDB	
1		1		TOCH CTTTET	1 + 1/1 + 1/1 1/1	L

_	1	(("20020012433").PN.) and link	USPAT;	2004/08/03
	_	( Looloollio ) IIII) and IIII	US-PGPUB;	08:44
			EPO; JPO;	
			IBM TDB	
_	1	(("20020012433").PN.) and	USPAT;	2004/08/02
		(telecommunications adj network) and	US-PGPUB;	15:33
		(packet adj2 network)	EPO; JPO;	
			IBM_TDB	
-	244	@ad<20000331 and gsm and authenticat\$3	USPAT;	2004/08/03
		and roam\$3 and gateway	US-PGPUB;	07:45
			EPO; JPO;	
	16 C	<b>\</b>	IBM_TDB	
-	YW	ad<20000331 and gsm and authenticat\$3	USPAT;	2004/08/03
		and roam\$3 and gateway and	US-PGPUB;	07:59
	183 V	(authentication adj server)	EPO; JPO;	
	'	W1075100W	IBM_TDB	2004/00/02
_	5	"1075123"	USPAT;	2004/08/03
			US-PGPUB;	07:59
			EPO; JPO;	
1	1	(("20020012422") pw )	IBM_TDB USPAT;	2004/09/03
-	1	(("20020012433").PN.) and (rand same		2004/08/03
		triplet)	US-PGPUB; EPO; JPO;	14:49
			IBM TDB	
	C 11/6	rand? same triplets	USPAT;	2004/08/03
-	Jew (°)	Yrand: same cripiecs	US-PGPUB;	08:46
	, )		EPO; JPO;	00.40
	1		IBM TDB	
1_	[ C.Y/ \ \ \ \	ad<20000331 and "network access	USPAT;	2004/08/03
1	June 1	identifier"	US-PGPUB;	14:15
		identifier	EPO; JPO;	14.15
			IBM TDB	
_	Ful /23	ead<20000331 and (gsm with	USPAT;	2004/08/03
		authentication) same gateway	US-PGPUB;	13:01
		,	EPO; JPO;	
			IBM TDB	
_	462	<pre>@ad&lt;20000331 and (msc same authenticat\$3)</pre>	USPAT;	2004/08/03
			US-PGPUB;	14:15
	t		EPO; JPO;	
	wil /	<b>\</b>	IBM_TDB	
-	par (34	@ad<20000331 and (msc same rand?? same	USPAT;	2004/08/03
	005	hlr same authenticat\$3)	US-PGPUB;	14:36
	Hw -		EPO; JPO;	
			IBM_TDB	
-	0	@ad<20000331 and (gsm same	USPAT;	2004/08/03
		"authentication gateway")	US-PGPUB;	14:37
			EPO; JPO;	
	_	0.1.000000001	IBM_TDB	0004/00/00
-	0	@ad<20000331 and (gsm and "authentication	USPAT;	2004/08/03
		gateway")	US-PGPUB;	14:37
			EPO; JPO;	
		cad<20000331 and ( "authentication	IBM_TDB USPAT;	2004/09/02
1 -	full / 7		US-PGPUB;	2004/08/03
	ľ	gateway")	EPO; JPO;	13.3/
			IBM TDB	
_	3	"0002406"	USPAT;	2004/08/04
	]	0002100	US-PGPUB;	07:34
1			EPO; JPO;	", "
			IBM TDB	
Į.	1			

L Number	Hits	Search Text	DB	Time stamp
-	FW (25)	authenticat\$4 adj triplets	USPAT;	2004/08/04
			US-PGPUB; EPO; JPO;	08:57
			IBM TDB	
_	5550	authenticat\$3 same ((more same once)	USPAT;	2004/08/04
		multiple)	US-PGPUB;	08:58
		-	EPO; JPO;	
			IBM_TDB	
-	2323	authenticat\$3 with ((more same once)	USPAT;	2004/08/04
		multiple)	US-PGPUB;	08:58
			EPO; JPO; IBM TDB	
	302	authenticat\$3 with ((more same once))	USPAT;	2004/08/04
	502	additioned with / (more pame offee)	US-PGPUB;	08:59
	5		EPO; JPO;	
	ĺ		IBM TDB	
_	93	authenticat\$3 with ((twice))	USPAT;	2004/08/04
			US-PGPUB;	08:59
			EPO; JPO;	
			IBM_TDB	0000400404
_	1	authenticat\$4 same (multiple adj	USPAT;	2004/08/04
		challenges)	US-PGPUB; EPO; JPO;	09:03
	15th /		IBM TDB	
-	39	authenticat\$4 same (multiple adj keys)	USPAT;	2004/08/04
	SUMMY	masionologoti same (marelple day negs)	US-PGPUB;	09:04
			EPO; JPO;	
			IBM_TDB	
-	18	(authenticat\$4 same (multiple adj keys))	USPAT;	2004/08/04
		not ginter.in.	US-PGPUB;	09:06
	tu /	lacksquare	EPO; JPO;	
	fur / 5	//authortigat(4 game /miltiple add large)	IBM_TDB	2004/09/04
-	기 ( 5)	(authenticat\$4 same (multiple adj keys)) not ginter.in.) and @ad<20000331	USPAT; US-PGPUB;	2004/08/04
		not ginter.in., and ead<20000331	EPO; JPO;	09.10
		ħ	IBM TDB	
_	5 6	challenge vector"	USPAT;	2004/08/04
'	2 55 6 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Y Total Tota	US-PGPUB;	09:10
	1,10		EPO; JPO;	
	KM.	<b>(</b> )	IBM_TDB	
-	1	"challenge vector" same authenticat\$3	USPAT;	2004/08/04
,	ر تلایم		US-PGPUB;	09:11
	Ju10	h	EPO; JPO; IBM TDB	
_	16	"multiple secrets"	USPAT;	2004/08/04
	علا		US-PGPUB;	09:42
"	FULL		EPO; JPO;	
	IF IN U		IBM TDB	